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APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
08/736,019	10/22/96	GOODEARL	A 04585/002000

EXAMINER

18M2/1010

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ART UNIT	PAPER NUMBER
1817	6

DATE MAILED: 10/10/97

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

OFFICE ACTION SUMMARY

Responsive to communication(s) filed on 10/22/97

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 D.C. 11; 453 O.G. 213.

ıortened statutory period for response to this action is set to expire 3 month(s), or thirty days, ;hever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 36(a).

ɔosition of Claims

Claim(s) 132-140 is/are pending in the application.
Of the above, claim(s) _____ is/are withdrawn from consideration.
Claim(s) _____ is/are allowed.
Claim(s) 132-140 is/are rejected.
Claim(s) _____ is/are objected to.
Claim(s) _____ are subject to restriction or election requirement.

lication Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
The drawing(s) filed on _____ is/are objected to by the Examiner.
The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
The specification is objected to by the Examiner.
The oath or declaration is objected to by the Examiner.

rity under 35 U.S.C. § 119

Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☑ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.
☑ received in Application No. (Series Code/Serial Number) 08/036,555.
☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

Certified copies not received: _____.

Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e).

chment(s)

Notice of Reference Cited, PTO-892
Information Disclosure Statement(s), PTO-1449, Paper No(s). 5
Interview Summary, PTO-413
Notice of Draftperson's Patent Drawing Review, PTO-948
Notice of Informal Patent Application, PTO-152

SEE OFFICE ACTION ON THE FOLLOWING PAGES

Part III DETAILED ACTION

1. Preliminary amendment A has been entered. Claims 132-140 are pending in the instant Application.

2. The disclosure is objected to because of the following informalities:

GGF-II and GGF2HBS5 polypeptide is identified several times in the specification as SEQ ID NO. 167, which is a short primer nucleotide sequence. See page 7, line 16; page 32, lines 28-29; and page 66, lines 27-29. Appropriate correction is required at every occurrence in the disclosure.

It is suggested that the title of the instant Application be changed to reflect that it contains only method claims.

The Abstract is objected to in that it fails to succinctly describe the presently claimed invention. Correction is required.

The Brief Description of the Drawings is objected to in that there is no individual descriptions for figures 9, 11 and 13-20. Correction is required.

Pages 12-13, 61 (line 27), and 66 of the specification include probe and peptide sequences that require SEQ ID NO.'s in accordance with the sequence rules, 37 CFR 1.821(a)-(j). A new CRF, paper copy, and statement in accordance with 37 CFR 1.821(f) must be submitted. Applicant is reminded that an amendment to the sequence listing requires a substitute computer readable form copy and a substitute paper copy of the entire sequence listing, and a statement that

the content of the paper and computer readable copies are the same, and include no new matter. Furthermore, when the paper copy is amended into the specification, the page numbering must agree with the specification.

3. Claims 136-137 are objected to as not being in compliance with the sequence rules. A sequence that is made up of one or more noncontiguous segments of a larger sequence or segments from different sequences shall be presented as a separate sequence. See 37 CFR 1.822(o).

4. The non-statutory double patenting rejection, whether of the obviousness-type or non-obviousness-type, is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent. *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); and *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(b) and (c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.78(d).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 132-140 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-2 of U.S. Patent No. 5,602,096. Although the conflicting claims are not identical, they are not patentably distinct from each other because the process steps of administering a GGF are the same regardless of whether the purpose is to stimulate synthesis of acetylcholine receptors or inducing myelination of a neural cell by a glial cell

(*Ex parte Novitski*, 26 USPQ 1391). The instant process claims would inherently possess acetylcholine receptor synthesis stimulating activity.

6. Claims 132-140 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 132 and 152-154 of copending Application No. 08/472,065, over claims 141-148 of copending Application No. 08/471,833, over claims 132-162 of copending Application No. 08/735,021, over claims 132-133, 149-150, and 152 of copending Application No. 08/470,339, and over claims 132-140 of copending Application No. 08/736,070. Although the conflicting claims are not identical, they are not patentably distinct from each other because each recites the same process steps of administering either a) a polypeptide containing an EGF-like domain to treat MS (claims 141 and 145 of 08/471,833) or b) a glial growth factor for prophylaxis or treatment of a nervous system pathophysiological condition such as MS (claims 132 and 152 of 08/472,065) or c) a polypeptide which comprises an EGF-like domain for the prophylaxis or treatment of a pathophysiological condition of the nervous system (claims 132-162 of 08/735,021) or d) a polypeptide which comprises an EGF-like domain to stimulate mitogenesis of glial cells (claims 132-140 of 08/736,070) or e) stimulating mitogenesis of a glial cell by contacting the cell with secreted human glial growth factor or a protein comprised of sequences from secreted human glial growth factor (claims 132 and 152 of 08/470,339). The process steps recited in all of these applications involves the administration of the same genus of compounds, and all of the process steps would result in the prophylaxis/treatment of MS, induction of myelination, stimulation of mitogenesis of

glial cells, or the prophylaxis/treatment of a pathophysiological condition of the nervous system, and therefore cannot be patentably distinct, any over the others.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 132-140 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for inducing myelination of a neural cell by a glial cell in the peripheral nervous system (PNS) with polypeptides comprising the amino acid sequence of SEQ ID NO: 170, does not reasonably provide enablement for inducing myelination of a neural cell by a glial cell in the central nervous system (CNS) with any amino acid sequence comprising an epidermal growth factor (EGF) domain encoded by a GGF/p185 erb B2 ligand gene, or any polypeptide which binds a p185 erb B2 receptor, or any polypeptide with glial cell mitogenic activity. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. The specification does not provide a sufficient written description, examples, or guidance for any polypeptide that can be used to induce PNS myelination with the recited claim limitations because the "GGF/p185 erb B2 ligand gene" is a verbal description that does not sufficiently characterize with either physical or chemical structure the encoding gene. The GGF/p185 erb B2 ligand gene is called by several verbal names (GGF gene, p185 B2 ligand gene, HER2 ligand gene, etc.) and the possible scope of the claim changes with each name or subsequent name that may be bestowed upon this gene, related genes, or unrelated genes that

provide similar functions. Given just the verbal limitation, an encoding GGF gene would read on any encoded glial growth factor or mitogen such as neurotrophins, EGFs, FGFs, PDGFs, GDNFs, and a whole genus of cytokines because the verbal name only recites a functional, and not a chemical or structural limitation to the polypeptide used in the claimed methods. Absent any recited structural/chemical/physical limitations or characterizations of this gene in the instant claims commensurate in scope with the disclosure, the skilled artisan would be forced to perform undue experimentation to make and use the polypeptides encoded by this gene to the full reasonable scope of the claims because the full scope of the encoding gene reads on embodiments not envisioned or predicted by the disclosure. Furthermore, "an epidermal growth factor domain" does not provide sufficient characterization to what is enabled in the specification. EGF obviously has an EGF domain, but EGF is ineffective as a glial cell mitogen. SEQ ID NO: 170 presumably has a single EGF domain each, but this domain is not constant in amino acid composition or length in different polypeptides encoded by the GGF gene. Therefore, any polypeptide may have an EGF domain since without further chemical or structural characterization, an EGF domain does not sufficiently limit the claim commensurate in scope with the disclosure. It would greatly aid the further prosecution of the instant application if Applicants would clearly define "EGF-like" domains in various claimed or recited sequences by amino acid residue numbers, i.e. amino acids 305-405 of SEQ ID NO: 170, etc.

Claims 139 and 140 recite methods that employ products (polypeptides) with functional limitations (i.e. receptor binding or mitogenic activity) in the absence of any chemical or

structural limitations. As such, the claims encompass methods which use unknown polypeptides that are not taught in the disclosure in such a way that places the full scope of the invention in the hands of the skilled artisan due to lack of an adequate written description, examples, guidance, and predictability.

The claims encompass inducing myelination of a neural cell of the central nervous system (CNS). However, the specification is drawn to methods of using glial growth factors (GGFs) that have been enabled for only Schwann cells which myelinate neural cells of the peripheral nervous system (PNS). Schwann cells are not found in the CNS, and the physiology of Schwann cells is not predictive of the physiology of oligodendrocytes, which are glial cells found in the CNS. Applicant is invited to make of record in the instant Application a declaration demonstrating that the specification teaches the skilled artisan how to make and use the disclosed GFFs in a manner consistent with the myelination of CNS neural cells. Absent such a declaration, the specification does not provide an adequate written description, examples, or guidance by which myelination of CNS neural cells could be induced because of the unpredictability of extrapolating the physiology of Schwann cells onto the physiology of oligodendrocytes.

8. Claims 132-138 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The metes and bounds of "an epidermal growth factor domain" and a "GGF/p185 erb B2 ligand gene" are not clearly defined by the disclosure in such a way that the amino acid/nucleotide composition and overall length of such a domain/gene is definitive for all

polypeptides/nucleic acids encompassed by the claims. In addition, it is not clear how the sequences of claims 136-137 are supposed to be connected (covalent bond, noncovalent forces, etc.) or linked to one and other. All of the SEQ ID NOs in the claims are to nucleic acid sequences, and not amino acid sequences as recited in the claims. It would greatly aid the further prosecution of the instant application if Applicants would clearly define "EGF-like" domains in various claimed or recited sequences by amino acid residue numbers, i.e. amino acids 305-405 of SEQ ID NO: 170, etc. This step would also help avoid the further confusion of reciting nucleic acid sequences when amino acid sequences are intended.

9. No claim is allowed.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Gucker whose telephone number is (703) 308-6571. The examiner can normally be reached on Monday to Friday from 0800 to 1630.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Hutzell, Ph.D., can be reached on (703) 308-4310. The fax phone number for this Group is (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

SG

Stephen Gucker

October 1, 1997

PAULA K. HUTZELL
SUPERVISORY PATENT EXAMINER
GROUP 1800